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| 09/837,412 | 04/18/2001 | Jun Hirai | SONYJP 3.0-156 | 7675 |
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| LERNER, DAVID, LITTENBERG, KRUMHOLZ & MENTLIK, LLP 600 SOUTH AVNEUE WEST WESTFIELD, NJ 07090-1497 | | | DINH, MINH | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | |
|------------------------------|-----------------------|------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/837,412 | HIRAI, JUN |
| | Examiner Minh Dinh | Art Unit 2132 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 26 April 2007.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) 35-46, 53-56, 59 and 61 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-34, 47-52, 57, 58 and 60 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 26 September 2005 is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This action is in response to the RCE/amendment filed 04/26/07.

Claims 1, 7, 13, 24, 47, 50, 57-58 and 60 have been amended.

Response to Arguments

2. Applicant's arguments filed 04/26/07 have been fully considered but they are not persuasive. Applicant argues that Rhoads does not disclose embedding of the modulated digital watermark includes encoding insertion code information based on the modulated digital watermark (page 22, 3rd paragraph). A broad and reasonable interpretation of the claimed insertion code information is information used in the watermark embedding process. Rhoads discloses encoding insertion code information, i.e., the watermark orientation signal (fig. 8) based on the modulated digital watermark (fig. 8; col. 19, lines 4-35).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-34, 47-52, 57-58 and 60 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Regarding the amended claim 1, it recites the limitation "whereby embedding of the modulated digital watermark includes encoding insertion code information based on the modulated digital watermark". However, the originally filed specification, especially in paragraphs [0084-0086] as noted by Applicant, does not disclose "embedding of the modulated digital watermark includes encoding insertion code information based on the modulated digital watermark". Therefore, the limitation is considered new matter. Claims 7, 13, 24, 47, 50, 57-58 and 60 are rejected on the same basis as claim 1. Claims that are not specifically addressed are rejected by virtue of their dependency.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-34, 47-52, 57-58 and 60 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The amended claim 1 recites, among other elements, the insertion code information (line 18); however, the claim fails to interrelate essential elements of the invention as defined in the specification. Specifically, the claim fails to recite the function of the insertion code information, how it relates to other elements of the claim (i.e., the insertion information and the digital watermark representing the additional information), and why embedding of the modulated digital watermark (i.e., the encoded/modulated digital watermark information to be embedded as disclosed in paragraphs 0085-0086 of the specification) requires encoding insertion code information based on the modulated digital watermark as claimed. For prior art rejection purpose, the insertion code information is interpreted as information that is used in the watermark embedding process. Claims 7, 13, 24, 47, 50, 57-58 and 60 are rejected on the same basis as claim 1. Claims that are not specifically addressed are rejected by virtue of their dependency.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United

States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-3, 7-9 and 57 are rejected under 35 U.S.C. 102(e) as being anticipated by Rhoads et al. (6,614,914). Rhoads discloses an apparatus for embedding additional information such as ownership or usage rights into a content as a digital watermark (col. 44, line 64 - col. 45, line 7), the apparatus comprising: a generator operable to generate the digital watermark (fig. 1, element 100; fig. 2, elements 200-214); an embedding unit operable to embed the digital watermark into the content (fig. 1, element 106; fig. 2, element 228); and a first transmitter to transmit the content provided with the embedded digital watermark (fig. 1, element 112); whereby the digital watermark is modulated according to an embedding modulation signal that is determined on the basis of one or more characteristics of the content (i.e., the signal strength of the digital watermark is modified according to a perceptual mask that is determined on the characteristics of the content) (fig. 2, elements 218-224; col. 12, lines 8-24) and the modulated digital watermark is embedded into the content according to insertion information, i.e., control parameters (col. 6, line 64 - col. 7, line 16; col. 8, lines 25-31). Rhoads also discloses embedding of the modulated digital watermark includes encoding insertion code information, i.e., the watermark orientation signal (fig. 8) based on the modulated digital

watermark (fig. 8; col. 19, lines 4-35). Rhoads apparatus is capable of embedding the digital watermark such that the digital watermark can be removed from the content by using the insertion information and the modulated digital watermark.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1-5, 7-11, 13-14, 16-25 and 27-34, 47-52, 57-58 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shur (6,330,672) in view of Rhoads et al. (6,614,914).

Regarding claim 47, which is exemplary of claims 1, 7, 13, 24, 50, 57-58 and 60, Shur discloses an apparatus for embedding additional information into a content as a digital watermark and processing a watermarked content, comprising:

an embedding unit operable to embed the digital content, said embedding unit comprising: generator operable to generate the digital watermark (fig. 1B, elements 120 and 130); an embedding unit operable to

embed the digital watermark into the content (fig. 1B, element 106); a first transmitter to transmit the content provided with the embedded digital watermark (col. 8, lines 40-45); a second transmitter operable to transmit the digital watermark or information for reconstructing the digital watermark (col. 3, lines 48-52; col. 11, lines 60-66); and

 a removing unit operable to remove the digital watermark from the content, said removing unit comprising: a first acquiring unit operable to acquire the content provided with the embedded digital watermark (fig. 3, element 300); a second acquiring unit operable to acquire the digital watermark or the information for reconstructing the digital watermark (fig. 3, element 305; col. 11, lines 60-66); and a removing device operable to remove the digital watermark from the content by using the acquired digital watermark or the acquired information for reconstructing the digital watermark (fig. 3, element 315);

 whereby the digital watermark is embedded into the content according to insertion information such that the digital watermark can be removed from the content by using the insertion information and the digital watermark (fig. 1B; col. 8, line 50 – col. 10, line 40; col. 10, line 53 – col. 11, line 15).

 Shur does not disclose that the digital watermark is modulated according to an embedding modulation signal that is determined on the basis

of one or more characteristics of the content before it is embedded into the content and that embedding of the modulated digital watermark includes encoding insertion code information based on the modulated digital watermark. Rhoads discloses a watermarking system and method in which the digital watermark, before being embedded into a content, is modulated according to an embedding modulation signal that is determined on the basis of one or more characteristics of the content, i.e., the signal strength of the digital watermark is modified according to a perceptual mask that is determined on the characteristics of the content (fig. 2, elements 218-224; col. 12, lines 8-24) and embedding of the modulated digital watermark includes encoding insertion code information, i.e., the watermark orientation signal (fig. 8) based on the modulated digital watermark (fig. 8; col. 19, lines 4-35). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Shur system such that the digital watermark is modulated according to an embedding modulation signal determined on the basis of one or more characteristics of the content before it is embedded into the content and embedding of the modulated digital watermark includes encoding insertion code information based on the modulated digital watermark, as taught by Rhoads. The motivation for doing so would have been that the image could withstand more watermark

signal content without substantially impacting image fidelity (col. 12, lines 8-11).

Regarding claims 48-49 and 51-52, Shur further discloses that said removing unit further comprises a second embedding unit operable to embed a second digital watermark into the content from which the previous digital watermark has been removed from said removing device, and a distributing unit operable to distribute the content into which the second digital watermark has been embedded (col. 11, lines 12-15).

Regarding claims 2, 8, 14 and 25, Shur further discloses that the digital watermark comprises at least one of identification information and copyright information concerning the content (col. 4, lines 13-34).

Regarding claims 3 and 9, Shur further discloses that said generator comprises means for generating a key pattern used for indicating the additional information as the digital watermark (fig. 1B, element 121), and means for generating the digital watermark using the key pattern; and said second transmitter transmits the key pattern as the information for reconstructing said generator the digital watermark (fig. 1B, element 120; col. 11, lines 60-66).

Regarding claims 4 and 10, Shur further discloses that said generator comprises means for generating a key pattern used for indicating the additional information as the digital watermark (fig. 1B, element 121),

means for performing a logical AND operation of the key pattern and a candidate watermarking sequence generated based on the complexity of the content which meets the limitation of means for modulating the key pattern according to the complexity of the content (col. 9, lines 4-62), and means for generating the digital watermark by using the modulated key pattern (fig. 1B, element 106). Shur discloses that the second transmitter transmits the key pattern as the information for reconstructing said digital watermark. Shur does not explicitly disclose that the transmitted key pattern is modulated; however, this feature is deemed to be inherent to the Shur method as col. 11, line 60 – col. 12, line 6 show that the digital watermark generated using the modulated key pattern can be reconstructed using the transmitted key pattern. The Shur method would be inoperative the key pattern was not modulated prior to transmission.

Regarding claims 5 and 11, Shur further discloses that the first and second transmitters multiplex the content provided with the embedded digital watermark with the information for reconstructing the digital watermark (col. 11, lines 60-64).

Regarding claims 16 and 27, Shur further discloses that the first and second acquiring units acquire multiplexed data consisting of the content provided with the embedded digital watermark and the information for reconstructing the digital watermark (col. 11, lines 60-64) and said

information processing apparatus further comprising a separation unit operable to separate the multiplexed data (fig. 3, element 305).

Regarding claims 17 and 28, Shur further discloses that the information for reconstructing the digital watermark is a key pattern (col. 3, lines 48-50; fig. 3) and means for subtracting the digital watermark from the content using the key pattern (col. 11, lines 12-16).

Claims 18 and 29 are rejected on the same basis as claim 48.

Regarding claims 19 and 30, Shur further discloses an authentication processor operable to perform predetermined authentication processing before said second acquiring unit acquires the information for reconstructing the digital watermark (col. 9, lines 1-4; col. 10, lines 27-52).

Regarding claims 20 and 31, Shur further discloses that the key pattern is encrypted and needs to be decrypted before it can be used to reconstruct the digital watermark (col. 9, lines 1-4; col. 10, lines 27-52).

Regarding claims 21 and 32, Shur further discloses the second acquiring unit acquires the key pattern based on content identification information unique to the content provided with the embedded digital watermark (col. 8, line 56 – col. 9, line 4).

Regarding claims 22 and 33, Shur further discloses that the information for reconstructing the digital watermark is information indicating a pattern selected for embedding the digital watermark (col. 3, lines 48-50).

Regarding claims 23 and 34, Shur discloses that, before being embedded into the content as the digital watermark, the additional information is encoded with the coefficient of a candidate watermarking sequence (col. 9, lines 37-51). The coefficient of the candidate watermarking sequence meets the limitation of a modulation amount based on characteristics of the content. Shur further discloses that the second acquiring unit receives information indicating a modulation amount based on characteristics of the content as the information for reconstructing the digital watermark (col. 11, lines 47-52). Shur does not explicitly disclose that the removing unit reconstructs the digital watermark by encoding the additional information according to the information indicating the modulation amount so as to remove the digital watermark from the content; however, this feature is an inverse process of the modulation process at the embedding device and is deemed to be inherent to the Shur method.

11. Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shur in view of Rhoads as applied to claims 1 and 7 above, and further in view of Girod et al. (5,809,139) and Kubota et al (5,721,778). Shur discloses a multiplexed content including the watermarked content and the key for reconstructing the digital watermark (fig. 3, element 300). Shur also discloses that the key is encrypted (col. 10,

lines 27-52). Shur does not disclose an encryptor operable to encrypt the multiplexed content. Girod discloses encrypting a watermarked content at the transmitting side and decrypting the encrypted content at the receiving side (col. 10, lines 25-43). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined apparatus of Shur and Rhoads such that the watermarked content is encrypted before transmission, as taught by Girod. The motivation for doing so would have been to protect the content transmitted over a non-secure channel. Kubota discloses an encryptor operable to encrypt multiplexed content (fig. 6, element 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the combined apparatus of Shur and Rhoads to include an encryptor operable to encrypt the multiplexed content, as taught by Kubota.

12. Claims 15 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shur in view of Rhoads as applied to claims 13 and 24 above, and further in view of Girod et al. (5,809,139). Shur and Rhoads do not disclose that the watermarked content is encrypted before transmission and that the encrypted content is decrypted by a decryption unit. Girod discloses encrypting a watermarked content at the transmitting side and decrypting the encrypted content at the receiving side (col. 10, lines 25-43).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the combined apparatus of Shur and Rhoads such that the watermarked content is encrypted before transmission and the encrypted content is decrypted by a decryption unit, as taught by Girod. The motivation for doing so would have been to protect the content transmitted over a non-secure channel.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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